



Docket No. 4920-104 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer No.
Luying SUN	:	26817
Serial No. 10/731,268	:	Group Art Unit: 1745
Filed: December 9, 2003	:	Examiner: WEINER, Laura S.
Title: NON-AQUEOUS ELECTROLYTES	:	Confirmation No. 4722
HAVING AN EXTENDED TEMPERATURE	:	
RANGE FOR BATTERY APPLICATIONS	:	
	x	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF LUYING SUN
SUBMITTED UNDER 37 CFR 1.132

Sir:

I, Luying Sun, inventor of the above-described patent application, hereby declare as follows:

2. I understand that the above-identified patent application has been rejected under 35 U.S.C. § 102 as being anticipated or under 35 U.S.C. § 103 obvious in view of JP 2000243444 ('444) to Toriida et al. or JP 2000077096 ('096) to Kobayashi et al. I have reviewed these references. It is my opinion that the claims of the present application are non-obvious over the cited reference because the claimed non-aqueous electrolyte achieved superior results as shown by the following experiments.

3. Battery No. 1 was prepared using the electrolyte of the present invention Sample E-14 as described in Example 21 of the above-described application. Sample E-14

includes nitrile $N \equiv C - CH_2CH_2 - O - CH_3$ as described in Example 14 and 19 of the above-described application.

4. Battery No. 2 was prepared using the electrolyte of the present invention Sample E-9 as described in Example 21 of the above-described application. Sample E-9 includes nitrile $N \equiv C - CH_2 - O - CH_3$ as described in Example 9 of the above-described application.

5. Battery No. 5 was produced using the same materials as Battery No. 1.

6. Battery No. 6 was made using the same materials as Battery No. 1 except with a substitution of electrolyte Sample No. E-4 in place of Sample E-14 of the present invention. Sample E-4 includes nitrile $N \equiv C - CH_2CH_2 - O - CH_3$.

7. The battery performance of Toriida et al. is shown in Table 1 of Toriida et al. Examples 1 through 5.

8. The battery performance of Kobayashi et al. is shown in Table 2 of Kobayashi et al. Examples 1 through 9.

9. As shown in Table 1, the cycle (charge/discharge) efficiencies of batteries made using the electrolytes of the present claims were much higher than the cycle (charge/discharge) efficiencies of Toriida et al.

10. As shown in Table 2, the batteries of the present invention have much higher capacity retention at -10°C than that of Kobayashi et al. The resulting batteries of the present invention also showed excellent performance at even lower temperature, at -30°C , for example, batteries performed at 63.6% of capacity versus that obtained at room temperature.

11. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and, further, that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Dated: August 01, 2007

By: 
LUYING SUN

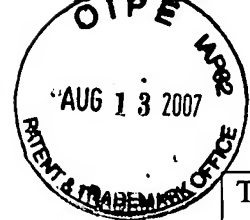


Table 1. A comparison of battery/cell performance over Toriida et al.

Testing results	JP 2000243444 (Toriida et al.)	Present Invention
1 st cycle (charge/discharge) efficiency (%)	Example 1: 72.2% Example 2: 76.2% Example 3: 67.9% Example 4: 69.4% Example 5: 84.5% (refer to Table 1 of the reference)	Battery No.1: 89.3% Battery No.2: 89.1% Battery No.5: 88.4% Battery No.6: 90.1%
2 nd cycle (charge/discharge) efficiency (%)	Example 1: 94.4% Example 2: 95.8% Example 3: 94.8% Example 4: 96.1% Example 5: 92.9% (refer to Table 1 of the reference)	Battery No.1: 97.3% Battery No.2: 98.4% Battery No.5: 97.7% Battery No.6: 98.3%

Table 2. A comparison of battery/cell performance over Kobayashi et al.

Testing results	JP 2000077096 (Kobayashi et al.)	Present Invention
Capacity retention at -10°C (%)	Example 1: 85.0% Example 2: 84.6% Example 3: 83.5% Example 4: 83.9% Example 5: 79.4% Example 6: 84.8% Example 7: 84.1% Example 8: 80.0% Example 9: 79.2% (refer to Table 2 of the reference)	Battery No.5: 98.0% Battery No.6: 98.8%
Capacity retention at -30°C (%)	N/A	Battery No.1: 63.6% Battery No.2: 60.7%